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CRUMUSCUS VITALIS GEN. ET SP. NOV. (DITRICHACEAE)

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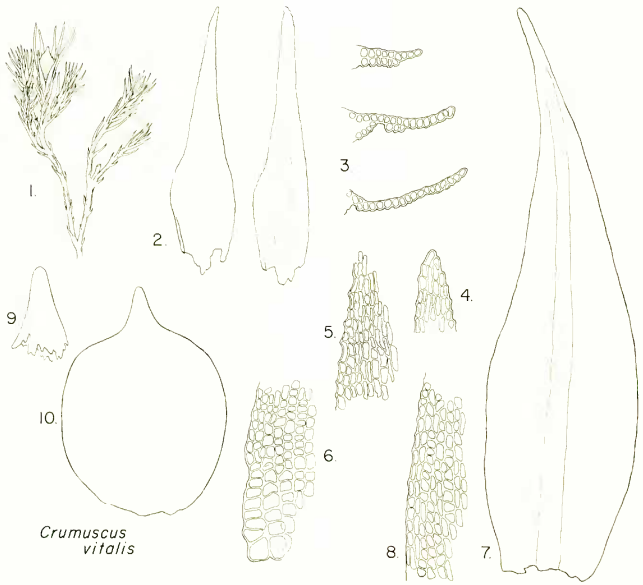
In 1982, Daniel M. Vital of the Instituto de Botânica in São Paulo, Brazil, sent around duplicates of a ditrichaceous moss he had collected on Itatiaia five years earlier. After receiving no responses, he sent it to W.R.B. several years later, who also let it languish for a few years before facing up to it. After some discussion on its affinities to *Pleuridium*, we have decided to describe it as a new genus. Both of us have had close and amiable ties to Howard Crum for many years and are delighted to have this opportunity to describe a distinctive new genus for a good friend and colleague.

Crumuscus vitalis Buck & Snider, gen. et sp. nov. FIGS. 1–10.

A *Pleuridio* foliis perichaetialibus a caeteris valde absimilibus, cellulis folii distaliter bistratosis mamilloso-prorulosis necnon calyptris mitriformibus differt.

Plants perennial, very small, to ca. 8 mm tall but often leafy only in upper 2–3 mm with old, denuded stems buried in soil. Stems reddish, especially with age, branching from beneath perichaetia and thus obscuring them, ca. 100 μm in diameter, in cross-section with ca. 7 layers of small, firm-walled cells surrounding a well developed central strand of very small, thin- and fragile-walled, collenchymatous cells; rhizoids smooth; axillary hairs 28–45 μm long, 2-celled, with a single, short to elongate, brown basal cell and a single, elongate, hyaline apical cell. Leaves when dry erect, often ± falcate, obscurely homomallous, when moist remaining erect but neither falcate nor homomallous, becoming larger toward stem apices, oblong-lanceolate, sometimes broadly so, ca. 0.6–0.9 mm long, broadly long-acuminate from an expanded base; margins subentire to crenulate, plane; costa broad and strong, ca. 40–55 μm wide at base, almost filling the acumen, excurrent, roughened above at back from projecting cell ends, in cross-section with 4 guide cells and two bands of stereids; laminal cells bistratose above (except at extreme margins), at shoulders unistratose with bistratose streaks, unistratose below, mostly rectangular, (1–)2–5:1, (9–)11–22 μm long, firm-walled, mammillose-prorulose at back above, smooth below, scarcely differentiated at insertion. Paroicous? Perichaetia terminal, leaves strongly and rather abruptly differentiated, erect, lanceolate to broadly lanceolate, to 2.5 mm long, concave, gradually acuminate; margins entire, plane to irregularly narrowly recurved; costa subpercurrent to percurrent, not filling the acumen, roughened at back; cells unistratose except perhaps in extreme acumen, quadrate to short-rectangular above, long-rectangular below, smooth. Setae very short, ca. 0.1 mm long, brittle, smooth, from a naked vaginula ca. 0.45 mm long; capsules immersed, cleistocarpous, peristomate, spherical to ovoid, stoutly apicu-



FIGS. 1–10. *Crumuscus vitalis*. 1. Habit, ×8. 2. Vegetative leaves, ×50. Laminal cross-sections (from top to bottom) near leaf apex, at leaf shoulder, near leaf base, ×200. 4. Leaf apex, ×200. 5. Upper laminal cells at margin, ×200. 6. Lower laminal cells at margin, ×200. 7. Perichaetial leaf, ×50. 8. Lower marginal perichaetial leaf cells, ×200. 9. Calyptra, ×50. 10. Detached capsule, ×50. Figs. 1–6, 9, 10 from the type (NY); figs. 7, 8 from *Schäfer-Verwimp & Verwimp 14639* (NY).

late, 0.75–0.85 mm long including the 0.15–0.2 mm long apiculus, separating from the seta at base of the capsule; exothecial cells irregularly rectangular, firm-walled, becoming gradually shorter and quadrate toward the apiculus; stomata none. Spores ± spherical, tardily separating from tetrads, 17–20 μm in diameter, papillose to verruculose. Calyptrae mitrate, minute, covering scarcely more than the capsular apiculus, 0.25–0.3 mm long, naked, smooth or slightly roughened.

TYPE. BRAZIL. Rio de Janeiro: Parque Nacional de Itatiaia, ca. 3 km SW of Pico das Agulhas Negras, 23°23′S, 44°38′W, on rocky cliff covered with thin layer of soil, 24 July 1977, *D. M. Vital 7435* (NY!, holotype; BUF, CINC!, FLAS, MO, SP!, isotypes).

ADDITIONAL SPECIMEN SEEN. BRAZIL. Minas Gerais: Nationalpark Itatiaia, auf feuchtem, offenen Humus nahe Brejo da Lapa, 2120 m, 7 July 1991, *Schäfer-Verwimp & Verwimp 14639* (NY).

This new genus of Ditrichaceae is named in honor of Howard Crum on the occasion of his 70th birthday; we are pleased to have come up with a name that is

not crummy-sounding! The specific epithet honors the collector, Daniel Moreira Vital, now a vital 67.

Crumuscus is closely related to *Pleuridium* as evidenced by capsule morphology and leaf areolation. It differs from *Pleuridium* on the basis of the following: the lack of stomata in the capsule wall, the mitrate calyptrae, the bistratose and mammillose-prorulose upper lamina of the vegetative leaves, and the leaf costa showing four guide cells and two stereid bands in transverse section.

Crumuscus appears to approach *Pleuridium* through *P. lindigianum* (Hampe) Churchill. The latter usually lacks stomata in the capsule wall and has mitrate calyptrae. However, the leafy gametophyte is typically that of *Pleuridium* in having unistratose, smooth leaf cells and undifferentiated, sub-stereid cells in the costal cross-section. Differentiated guide cells and stereid bands are absent. *Pleuridium papillosum* Magill, a species endemic to South Africa, is the only known *Pleuridium* to exhibit papillose leaf cells. In the latter, however, the unistratose laminal cells have several low, blunt papillae over the lumina. Additionally, the capsules contain stomata, and the calyptrae are cucullate.

Crumuscus appears to be even more closely aligned to the geographically sympatric *Cladastomum*, a genus both poorly known and collected. This genus, of two species (and a dubious variety), is confined to the Agulhas Negras region of Itatiaia National Park and Pico da Bandeira of Caparaó National Park, both part of the Serra da Mantequeira in eastern Brazil. The two genera share the following features: mitrate calyptrae, capsules lacking stomata, stems with a well developed central strand, and leaf costae in cross-section showing guide cells surrounded above and below by stereid bands. However, *Cladastomum* differs from *Crumuscus* in its overall aspect of julaceous sterile shoots, its ovate-cuspidate leaves appressed to the stems, as well as its production of faintly bipolar spores.

ACKNOWLEDGMENTS

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